as before. Her web was then almost a sheet on about a 60° angle to the floor. She sat upside down in the middle with her legs holding each side of the web and swung it backwards and forwards, causing any insect in the web to flutter and entangle itself, while at the same time signalling its position to the spider. In this way she used up less energy in her heavy state. On December 30 she started collecting the food from her store and stringing the packages with some leaf litter to the web. The male's body was not used.

Egg-laying: On February 1, 1977 the female laid her eggs in a bag of silk while suspended from her usual position in her web. These were reddish-brown, about the size of a pin head and resembled fish roe. She then completed the cocoon by covering the top with silk, forming a round, fluffy ball of it. Egg-laying and completion of the cocoon took 24 hours, with frequent resting pauses. The temperature that day was 36.4° C maximum, and 20° C minimum. After laying her eggs the female did not eat or drink, ignored easy prey, and sat holding her cocoon protectively. This was not easy as it was much bigger than she was, being 1.3 cm in diameter.

On February 23 the eggs hatched, after an incubation period of 22 days. The temperature at the time was 25° C. The young were identical in appearance to the parent spider. The mother did not cannibalize her young, which stayed within the silken outer cover of the egg sack.

The mother died on February 25. The babies stayed near the egg sack for the following few days and ate their mother. Their growth rate was very slow.

On March 9 the young started dispersing. They began eating the "packages" and later they ate the male parent and some small aphids.

The terrarium was moved to an outside shed on April 14 and the growth rate of the young spiders increased. They became diurnal and all retreated to the web around the egg sack about 5 p.m. There are about 50 young now and still no cannibalism has been noted. The food comprises mainly small aphids and small moths.

On August 24 the young appeared to be only half grown, suggesting a possible maturing period of more than 12 months.

A NEW RECORD OF *ASPLENIUM OBTUSATUM* FORST. F. VAR. *OBTUSATUM* IN WESTERN AUSTRALIA

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The Shore Spleenwort, *Asplenium obtusatum* Forst. f. var. *obtusatum*, is a fern inhabiting maritime cliffs of southern temperate and sub-antarctic regions. Its distribution includes extra-tropical South America (S.W. Chile and Juan Fernandez I.), Pacific islands, Kermadec I., New Zealand (North and South Is.), Three Kings and Stewart I., Chatham I., Antipodes I., Auckland I., Campbell I., southern Australia, and Tristan da Cunha and Gough I., to the south west of South Africa.

In Australia this species has been recorded from sea cliffs in Queensland, New South Wales, Victoria, Tasmania and South-Western Australia. It has not been recorded from South Africa, as one might expect, considering the latitude of the Cape Peninsula. Taylor (1955) did not record it from Macquarie I., although he recorded *Blechnum penna-marina* Kuhn., *Polystichum vestitum* Presl and *Polypodium billardieri* R.Br.—three ferns of southern temperate and sub-antarctic regions, one or other of which has been recorded as associated with *Asplenium obtusatum* over its circumpolar distribution.

This hardy fern inhabits shallow soil of clefts and shelves of sea cliffs, usually in sites high above the sea and exposed to salt-laden winds.

The stout stipes and the leathery texture of the pinnae of the fronds are adaptations to maritime conditions of persistent cyclic salt and strong winds. This sort of xeromorphism commonly occurs in coastal shrub species the closer the plants come to the littoral. A similar xeromorphism occurs in the northern hemisphere counter-part of this fern, *Asplenium marinum* L. (Sea Spleenwort), which occurs on sea cliffs of the British Isles, and western Europe, extending eastwards very locally to southern Italy (Tutin *et al.*, 1964).

The first record of *Asplenium obtusatum* in Western Australia was a collection made by George Maxwell in 1866 from a cliff site on Breaksea Island in King George Sound. His specimen, in the National Herbarium of Victoria, was determined by Ferdinand von Mueller as *Asplenium marinum* var. *obtusum* F. Mueller (Mueller, 1866).

The celebrated ornithologist, A. J. Cambell F.L.S., visiting Western Australia in 1890 to report upon natural history, landed on Breaksea Island with a friend and wrote of *Asplenium obtusatum* as follows (*The Australasian*, no 1249, vol XLVII (Melbourne), March 8, 1890): "The light-keepers informed us of a rare fern, the like they had never seen before. We eagerly desired to see it, but our ardour was somewhat damped when we were told that we would have to dangle over the mouth of a yawning cavern, and be lowered by a rope about 40 ft. over the weather side of the island. From what we can learn the fern grows in small patches about 2 ft. to 3 ft. high, in cool, shady places among cleft rocks which hold turf and decomposing, disintegrating granite. Fortunately I was presented with a fruiting frond by Pilot Butcher, who has the plant in cultivation. It proved to be the *Asplenium marinum* of botanists, and upon the authority of Baron von Mueller, K.C.M.G., new to Western Australia although previously recorded for Tasmania, Victoria, New South Wales, and Queensland, as well as other extra-Australian localities."

In 1975 a colleague of the author, Dr Ian Abbott was collecting the flora of the islands off the south and south-west coast and participated in a detailed biological survey of Chatham Island west-southwest of Walpole, Western Australia. The author asked him to search for *Asplenium obtusatum*.

Dr Abbott collected extensively the floras of Breaksea, Eclipse,

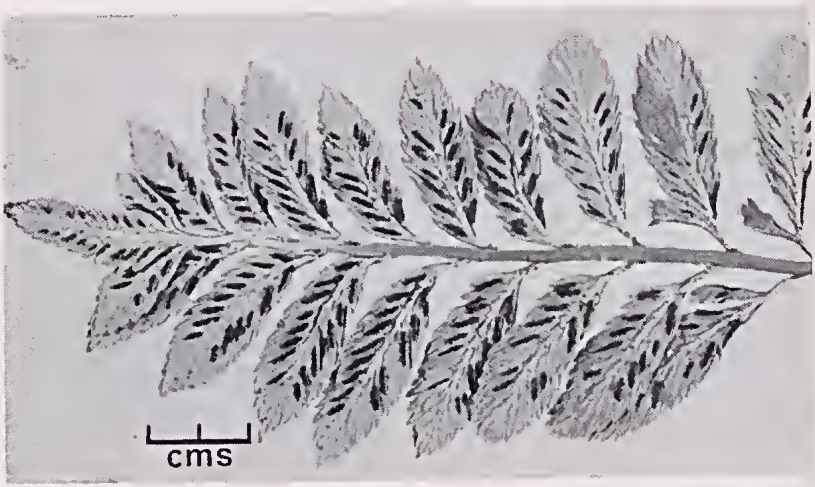

Fig. 1.—Distal portion (ventral view) of a frond of *Asplenium obtusatum* from a plant at Chatham I., South-Western Australia.

Michaelmas, Chatham, and other small islands, but found the Spleenwort only on Chatham Island. Two small clumps (<1m² area) were found at the south end of the island, the first in the lee of granite-gneiss boulders about 180 m above sea level, the second in a valley about 100 m above sea level. Both clumps were exposed to south-westerly winds (Abbott and Watson, 1978). The species may still occur on Breaksea I., because its occurrence there in 1890 as described by Campbell above may have been overlooked by Dr Abbott, who was collecting alone on the island and did not therefore have the opportunity to lower himself 40 feet down the southern side of the island.

Dr Abbott's collection of fronds, the tallest of which is 37 cm, is held in the Herbarium of the Botany Department, University of Western Australia, and a duplicate in the Western Australian Herbarium.

The author would welcome further collections of this species from our coast. It very likely inhabits cliffs of the mainland as well as those of the islands, be it only sparsely.

In view of the apparent rarity of this species on our coast, it is suggested collectors take only a single frond from a plant and press to dryness in newspaper as soon as possible.

Asplenium obtusatum is readily recognisable by its stout, erect, rigid, once-pinnate fronds up to ±40 cm long, arising from a shortly creeping, clumped rhizome. Stipes green. Lamina with 2-8 or more pairs of pinnae. Pinnae thick and almost cartilaginous, prominently stalked, ±4.5 cm long, ±1.5 cm broad, the pinnae margins coarsely toothed and slightly thickened below. Apices of pinnae acute or broadly rounded, never finely attenuated. Sori oblong. Indusia oblong, elongated along the veins (Fig. 1.).

ACKNOWLEDGMENT

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